UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/129,758	08/05/1998	RAINER WALDMANN	989.6701P	5113

22469 7590 05/07/2002

SCHNADER HARRISON SEGAL & LEWIS, LLP
1600 MARKET STREET
SUITE 3600
PHILADELPHIA, PA 19103

EXAMINER	
BASI, NIRMAL SINGH	
ART UNIT	**PAPER NUMBER**
1646	18

DATE MAILED: 05/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/129,758	Applicant(s) WALDMANN et al
	Examiner Nirmal S. Basi	Art Unit 1646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Jan 22, 2002* .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-3, 5, 11-13, 15, 17-24, and 26-29* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-3, 5, 11-13, 15, 17-24, and 26-29* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☒ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

DETAILED ACTION

1. Response filed 7/31/01 (paper number 14) and Amendment filed 1/22/02 (paper number 17) and has been entered.

Election/Restriction

2. Applicant's election of Group I Claims 1-3, 5, 11-13 and 17-24, pertaining to protein of SEQ ID NOS:2, 4 and 8 encoded by the nucleic acid of SEQ ID NOS:1, 3 and 7, respectively, in Paper No. 14 (7/13/01), and in paper number 17 92/25/02 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Newly added claims 26-29 will be examined as they pertain to the elected invention of Group I. Claim 24 is directed to both non-elected invention and elected invention, ie antibody and channel protein. Claim must be Amended to remove reference to antibody

Objections

3. The disclosure is objected to because of the following informalities:

Applicants are required to use the heading "Brief Description of the Drawings" to describe the drawings. See MPEP 608.01(f).

The drawings objected to because each Figure must described separately in the Brief Description of the Drawings. For example: a) Figure 2 should be labeled as Figure 2A, 2B in the, Brief Description of the Drawings

Appropriate correction is required.

4. Acknowledgment is made of applicant's claim for foreign priority based on an applications filed in France (09/01574, 97/09587, 98/00270). It is noted, however, that applicant has not filed a certified copies of the application as required by 35 U.S.C. 119(b).

5. Page 22, line 1, contains a heading in a foreign language. The heading must be Amended in to English.

5. ***Sequence Rules Compliance***

This application fails to comply with the sequence rules, 37 CFR 1.821-1.825. Nucleotide and polypeptide sequences must be identified with the corresponding SEQ ID NO. Title 37, Code of Federal Regulations, Section 1.821 states "reference must be made to the sequence by use of the assigned identifier", the identifier being SEQ ID NO. Sequences in Figure 2 must be identified by their corresponding SEQ ID NO:. Compliance with sequence rules is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

Claims 1-3, 5, 11-13 and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-3, 5, 11-13 and 15 recite a nucleic acid molecule and protein sequences but do not recite that they are isolated or purified. The claims as currently recited encompass these naturally-occurring compounds. Therefore, the compounds as claimed are a product that occurs in nature and does not show the hand of man, and as such is non-statutory subject matter. It is suggested that the claims be amended to recite "an isolated and purified" to overcome this rejection.

Claim Rejection, 35 U.S.C. 112

7. Claims 1-3, 5 11-13, 15, 17-24 and 26-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 11 are indefinite because the name mammalian neuronal cationic channel does not provide any structural limitation on the claim and the metes and bounds of the claim cannot be determined.

Claims 2, 3, 5 are indefinite because it is not clear what is a "functionally equivalent derivative" so as to allow the metes and bounds of the claim to be determined. It is not clear what "functionally equivalent derivative" includes and exclude. The terms "derivative" carries no weight in terms of structure and function and encompasses an unlimited number of alterations and reads on unrelated molecules.

Claim 17 is indefinite because it is not clear when a nucleic acid molecule is advantageously combined with a control sequence as compared to when it is not advantageously combined.

Claims 18, 22 and 28 are indefinite because it is not clear what are "the suitable means" so as to allow the metes and bounds of the claim to be determined. Regarding claim 18 the word "means" is preceded by the word(s) "isolating by any suitable" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. Regarding claim 22 the word "means" is preceded by the word(s) "and measuring, using ant suitable" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. Regarding claim 28 the word "means" is preceded by the word(s) "and measuring, using any suitable" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim 18 is indefinite because it is not clear what nucleic acid molecule or a vector comprises "said nucleic acid" because "said nucleic acid" is not disclosed in the claims.

Claims 20 and 26 are an improper Markush grouping encompassing both a genus and a species. Further the claim is not in the proper format for a Markush claim. The claim should be written in a format such as "----wherein the host cell is selected from the group consisting of A, B, C and D". It is not clear when the host cell should be "notably" selected.

Claims 22 and 28 are indefinite because it is not clear what activity is modulated, what effect on the currents is measured, how it is measured and what determines when the activity is modulated.

Claims 22 and 28 do not disclose the specific assay steps or disclose how the goal of the claimed method is achieved. An acceptable method claim must contain three sections: 1) a preamble, 2) method steps that clearly define what is to be done in each step, and 3) a conclusion that what was stated in the preamble was achieved (the method does not contain specific assay steps and a statement how and when the goal of the claim is achieved). The method must contain the activity measured, and the conclusion must disclose how and what determines if the activity is modulated.

Claims 23 and 29 is indefinite because it is not clear what is the "perception of acidity with regard to nociception and taste transduction" and how it is determined so as to allow the metes and bounds of the claim to be determined.

Claim 19 recites the limitation "transferring a nucleic acid molecule comprising a nucleic acid" in claims 1, 2, 3 and 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites the limitation "transformed cell" in claims 18. There is insufficient antecedent basis for this limitation in the claim.

Claim 27 recites the limitation "transformed cell" in claims 19. There is insufficient antecedent basis for this limitation in the claim.

Claim 24 is objected to because it contains a non-elected invention, ie antibody

Claims 12-13, 15, are rejected for depending upon an indefinite base (or intermediate) claim and fail to resolve the issues raised above.

Claim Rejections - 35 USC § 101 and 35 USC § 112, 1st paragraph

The following is a quotation of 35 U.S.C. 101:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-3, 5 11-13, 15 and 17-24 and 26-29 are are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

A "specific utility" is a utility that is specific to the subject matter claimed, as opposed to a "general utility" that would be applicable to the broad class of the invention. A "substantial utility" is a utility that defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial

utilities. A "well established utility" is a utility that is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art. A "well established utility" must also be specific and substantial as well as credible.

Based on the record, there is not a "well established utility" for the claimed invention.

Applicant has asserted utilities for the specifically claimed invention of claims 1-3, 5, 11-13, 15, 17-24 and 26-29. The claims are directed to: a) isolated nucleic acid comprising a sequence that encodes a cation channel b) Protein comprising a cation channel protein and methods of screening substances that are capable of modulating the activity of the ion channel. Claims are also directed to cell transfected with the claimed nucleic acid.

The specification discloses a the protein of SEQ ID NOs:2, 4 and 8 encoded by the nucleic acid of SEQ ID NOs:1, 3 and 7. The specification discloses, page 3, lines 4-7, "no normal physiological function of MDEG was known until the demonstration of its activation by protons in accordance with cationic channels of the present invention.

The specification discloses general functional activities of cationic channels but does not disclose any activity associated with the claimed cationic channel. In light of the specification the skilled artisan can conclude that protein of instant invention is a cationic channel protein. However, no disclosure is provided within the instant specification on what specific function the claimed cationic channel protein possesses, nor are any disease states disclosed that are directly related to cation channel dysfunction. Ions are known to play a role of first or second messenger

in numerous cellular signaling contexts, but it is not known what role claimed cationic channel plays signaling and what would be the use of interfering with its function, apart from as targets for drug discovery

The utilities asserted by Applicant are not specific or substantial. Since no specific function of claimed cation channel is known, and the ability to transport ions with no associated function is not considered a "well established utility" the hypothesized functions are based entirely on conjecture from homologous polypeptides, the asserted utilities are not specific to instant polypeptide, but rather are based on family attributes. Neither the specification nor the art of record disclose the nucleic acid of SEQ ID NO:1, 3 or 8 encoding the protein of SEQ ID NO:2, 4 or 8 or fragments thereof useful to identify drugs that affect said protein and modulate its activity. Similarly, neither the specification nor the art of record disclose any instances where disorders can be effected by interfering with the activity of claimed cation channel. Thus the corresponding asserted utilities are essentially methods of using claimed cation channel to identify or treat disease states associated with cation channel polypeptide disfunction and as targets for drug discovery. Therefor the asserted utilities are essentially methods of testing for or for potentially treating unspecified, undisclosed diseases or conditions, which does not define a "real world" context of use. Treating or testing for compounds that interact with claimed cation channel, which may be implicated in an unspecified, undisclosed disease or condition would require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use. Since neither the specification nor the art of record disclose any activities or

properties that would constitute a "real world" context of use for the claimed cation channel, further experimentation is necessary to attribute a utility to the claimed cation channel. See Brenner v. Manson, 383 U.S. 519, 535–36, 148 USPQ 689, 696 (1966) (noting that "Congress intended that no patent be granted on a chemical compound whose sole 'utility' consists of its potential role as an object of use-testing", and stated, in context of the utility requirement, that "a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion."). Therefore the reason given above and the claims are rejected. Likewise cells transfected with claimed nucleic acid, and methods of screening using claimed cation channel, lack utility for these reasons given above.

9. Claims 1-3, 5 11-13, 15, 17-24 and 26-29 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. Since neither the specification nor the art of record disclose any activities or properties that would constitute a "real world" context of use for the claimed cation channel, further experimentation is necessary to attribute a utility to the claimed polypeptides, polynucleotides and methods of their use.

While the person of ordinary skill in the art would, in light of the specification be able to isolate polypeptides represented by SEQ ID NOS: 2, 4 and 8 encoded by the nucleic acid of SEQ ID NOs:1, 3 and 7, respectively, the scope of the claims, which encompass polypeptides and polynucleotides with no defined structure and function which encompasses, mutants, variants,

analogs, homologs or derivatives of SEQ ID NOS:2, 4 and 8 are not enabled by the disclosure. The disclosure does not teach how to make functional mutants, variants, analogs, homologs or derivatives of SEQ ID NOS:2, 4 and 8, or to use a commensurate number of the inactive fragments, mutants, variants, analogs, homologs or derivatives which may be structurally and functionally different to the disclosed proteins of SEQ ID NOs:2, 4 and 8. There is no disclosure of the critical structural feature of the invention or how it relates structure to function. Due to the large quantity of experimentation necessary to identify the polypeptides and polynucleotides of instant invention, the lack of direction/guidance presented in the specification regarding the identification, purification, isolation and characterization of said polypeptides, the unpredictability of the effects of mutation on the structure and function of proteins (since mutations of SEQ ID NO:2, 4 and 8 are also encompassed by the claims), and the breadth of the claim which fail to recite structural and functional limitations, undue experimentation would be required of the skilled artisan to make or use the claimed invention in its full scope. Further the name "mammalian neuronal cation channel provides no structure to the claimed protein.

The claims 1-3, 5, 11, 17, 21, 27 are similar to single means claims in that claims recite a mammalian neuronal cation channel protein or nucleic acid or functionally equivalent derivatives thereof, but the specification only discloses the polypeptides, represented by of SEQ ID NO:2, 4 and 8. MPEP 2164.08(a) defines a single means claim as a claim which covered every conceivable means for achieving the stated purpose when the specification disclosed at most only those means known to the inventor. This type of claim was held to be nonenabling for the scope

of the claim in In re Hyatt, 708 F.2d 712, 218 USPQ 195 (Fed. Cir. 1983) because the specification disclosed at most only those means known to the inventor. When claims depend on a recited property (i.e. functionally equivalent or mammalian neuronal cationic channel), a fact situation comparable to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor. This appears to be the instant case and the claims are not commensurate in scope with the specification.

While the person of ordinary skill in the art, would, in light of the specification, be able to make polypeptides of SEQ. ID. NO:2, SEQ ID 4 and SEQ ID NO:8, the scope of the claims, which encompass any polypeptide and polynucleotide which can be loosely classified as an mammalian neuronal cationic channel, is simply not enabled by the disclosure. The disclosure does not teach how to use any of the numerous polypeptides or variants, which are encompassed by the claims, but are inactive or lack functionality.

Further mammalian neuronal cationic channel or functionally equivalent derivative also fails to identify polypeptide or its encoded of polypeptide by specific functional activity or specific structure. The claims encompass compounds whose scope cannot be determined due to indefiniteness of the claims (see rejection, above) . Further, structural features that could distinguish the compounds in the genus from others are missing from the disclosure. There is no disclosure of the critical technical feature of the invention. The prior art teaches that amino acid substitutions produce unpredictable results in a structurally related protein. Furthermore, neither

the specification nor the prior art provide any guidance as to which amino acids could be altered, nor does the specification provide any guidance as to how the skilled artisan could use an inactive variants, mutants. Therefore, it would require undue experimentation to practice this invention as claimed, because the skilled artisan would have no reasonable expectation that variants and mutants could be used for any purpose. Furthermore, the prior art does not provide compensatory structural or correlative teachings sufficient to enable one of skill to make, isolate, identify and use the claimed variant nucleic acid encoding polypeptides encompassed, without undue experimentation.

Therefore, due to the lack of direction/guidance presented in the specification regarding the production, identification, purification, isolation and characterization of the mutants, variants, analogs, homologs or derivatives of SEQ ID NOS:2, 4 and 8, encompassed by the claims, the unpredictability of the effects of mutation on the structure and function of proteins, and the breadth of the claim which fail to recite specific structural and functional limitations, undue experimentation would be required of the skilled artisan to make or use the claimed invention. Further since the compounds of SEQ D Nos 1-4 and 7-8 and their derivatives are not enabled for the reasons given above, methods of using said compounds is also not enabled.

Claim 24 is rejected under 35 U.S.C. 112, first paragraph, because the specification does not reasonably provide enablement for the claimed pharmaceutical composition. The, specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Specification provides no guidance on the function of the polypeptide of SEQ ID NO:2, 4 and 8 or derivative thereof. The specification nor prior art disclose any disease states containing an abnormality involving the compounds of SEQ ID NOs:1-4 and 7-8. The specification nor prior art suggest that administration of the afore mentioned compounds would be beneficial as treatment or even if the pharmaceutical composition would reach its target without being degraded. Further said compositions could be toxic.

While the person of ordinary skill in the art would, in light of the specification be able to make composition containing the claimed compounds, the scope of the claims, which encompass pharmaceutical composition is not enabled by the disclosure. The disclosure does not teach how to make functional derivatives of the claimed compounds and how to use pharmaceutical compositions which were not effective in the treatment. Due to the large quantity of experimentation necessary to identify the derivatives and the compounds of SEQ ID NOS:1-4 and 7-8 that can treat specific diseases, the lack of direction/guidance presented in the specification regarding the identification, purification, isolation and characterization of said compounds as relate to treatment of disease states(would these compounds increase or decrease a particular activity related to a disease state) , the unpredictability of the effects of the afore mentioned agents on the disease state and the breadth of the claim which fail to recite specific structural and functional limitations, undue experimentation would be required of the skilled artisan to make or use the claimed invention.

10. Claims 1-3, 5, 11, 17, 18-24 and 26-29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The instant specification does not contain a written description of the invention in such full, clear, concise, and exact terms or in sufficient detail that one skilled in the art can reasonably conclude that applicant had possession of the claimed invention at the time of filing.

The claims are directed to the compounds of SEQ ID NOs:1-4 and 7-6, their derivatives and methods of their use.

The specification discloses the polypeptide of SEQ ID NO:2, 4 and 8 encoded by the polynucleotide of SEQ ID NO:s 1, 3 and 7. The instant disclosure of three distinct polypeptide does not adequately describe the scope of the claimed genus, which encompasses a substantial variety of subgenera including full-length, truncated, fusion molecules and variants thereof; A description of a genus of polypeptides may be achieved by means of a recitation of a representative number of polypeptides, defined by an amino acid sequence, falling within the scope of the genus or of a recitation of structural and functional features common to members of the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v. Eli Lilly & Co.*, 119 F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The instant specification fails to provide sufficient descriptive information, such as definitive structural and functional features of the claimed genus of polypeptides and polynucleotides.

There is no description of the conserved regions which are critical to the structure and function of the genus claimed. The fusion polypeptides, fragments and variants encompassed by the claims do not disclose the critical technical feature of the claimed invention or its relationship to function. For example, polypeptides comprising a fragment or variants of SEQ ID NO:2, 4 and 8 may be completely unrelated to the disclosed polypeptide of SEQ ID NO: 2, 4 and 8, having a different function or even be inactive. The critical technical feature encompassed by the fragments and variants must relate to the encompassed polypeptide, structurally and functionally to the disclosed proteins of SEQ ID NO:2, 4 and 8. The same argument applies to the mutants, variants, analogs, homologs, derivatives and fusion products encompassed by the claims. It is not clear what critical technical feature undisclosed amino acids, disclosed amino acids in a specific fragment, or recited descriptive language provide so as to show a written description of the invention in full, clear, concise, and exact terms or in sufficient detail that one skilled in the art can reasonably conclude that applicant had possession of the claimed invention at the time of filing. There is no description, of the sites at which variability may be tolerated and there is no information regarding the relation of structure to function. Structural features that could distinguish the compounds in the genus from others excluded are missing from the disclosure. Furthermore, the prior art does not provide compensatory structural or correlative teachings sufficient to enable one of skill to isolate and identify the polynucleotides encompassed and no identifying characteristic or property of the encoded polypeptides is provided such that one of

skill would be able to predictably identify the encompassed molecules as being identical to those instantly claimed.

The specification further fails to identify and describe the regulatory regions essential to the function of the claimed invention, which are required since the claimed invention currently encompasses the full length, truncated, fusion products and variants thereof. Since the disclosure fails to describe the common attributes or characteristics that identify members of the genus, and because the genus may be highly variant, the disclosure is insufficient to describe the genus. One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe and enable the genus as broadly claimed.

An adequate written description of a protein or nucleic acid molecule requires a precise definition, such as by structure, formula, chemical name, and physical properties, not a mere wish or plan for obtaining the claimed chemical invention. Accordingly, an adequate written description of a polypeptide is more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the polynucleotide or the encoded protein itself. Accordingly, the specification does not provide a written description of the invention of claims 1-3, 5, 11, 17, 18-24 and 26-29

One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe, enable and use the genus as broadly claimed. The skilled artisan cannot envision the detailed chemical structure of the encompassed proteins and, therefore, conception is not achieved until reduction to practice has occurred, regardless of the

complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. It is acknowledged that the skill of the artisan in the molecular biology art is high. However, in the current instance, **there is no clear evidence of activity possessed by the claimed genus of polypeptides, the critical special technical feature of the polypeptides or how the critical special technical feature encompassed by the genus claimed relates to function.** Because of the lack of guidance in the prior art and current application, one skilled in the art could not predict if the variants of the polypeptide of SEQ ID NO:2, 4 and 15 have the same activity as the protein of SEQ ID NO:2, 4 and 8, since no activity is disclosed, nor the fragments disclosed with the critical special technical feature of the invention. The breadth of the claim come from encompassing polynucleotide encoding a protein, the fragments or variants which do not have an associated structure which defines the critical special technical feature of the invention. Further claim 1 does not even provide any structural information about the claimed polypeptide but claims every protein that is sensitive to amiloride.

Vas-Cath Inc. V. Mahurkar, 19 USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (*See Vas-Cath* at page 1116).

Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 USC 112 is severable from its enablement provision (see page 115).

Adequate written description requires more than a mere statement that it is part of the invention and a reference to a potential method of isolating it. The nucleic acid or polypeptide is itself is required. See *Fiers v. Revel*, 25 USPQ 2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. V. Chugai Pharmaceutical Co. Lts.*, 18 USPQ2d 1016.

Furthermore, In *The Reagents of the University of California v. Eli Lilly* (43 USPQ2d 1398-1412), the court held that a generic statement which defines a genus of nucleic acids by only their functional activity does not provide an adequate written description of the genus. The court indicated that while Applicants are not required to disclose every species encompassed by a genus, the description of a genus is achieved by the recitation of a representative number of DNA molecules, usually defined by a nucleotide sequence, falling within the scope of the claimed genus. At section B(1), the court states that "An adequate written description of a DNA...'requires a precise definition, such as by structure, formula, chemical name, or physical properties', not a mere wish or plan for obtaining the claimed chemical invention".

With the exception of SEQ ID NO:2, 4 and 8, the skilled artisan cannot envision the detailed chemical structure of the claimed polypeptide and polynucleotides and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The

nucleic acid itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc v. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016.

One cannot describe what one has not achieved. See Fiddes v. Baird, 30 USPQ2d 1481, 1483. In Fiddes v. Baird, claims directed to mammalian FGFs were found unpatentable due to lack of written description for the broad class.

Therefore, only the polypeptide comprising SEQ ID NO:2, 4 and 8, the nucleic acid comprising SEQ ID Nos: 1, 3 and 7, vectors containing said nucleic acid, cells containing said vector and methods using said polypeptide, nucleic acid, vector, cell but not the full breadth of the claim meets the written description provision of 35 U.S.C. 112, first paragraph. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision. (See page 1115). Methods for using derivatives, mutants and variants of SEQ ID NOs:1-4 and 7-8 also do not meet written description for the reasons given above.

No claim is allowed.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nirmal Basi whose telephone number is (703) 308-9435. The examiner can normally be reached on Monday-Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached on (703) 308-6564. The fax phone number for this Group is (703) 308-0294.

Official papers filed by fax should be directed to (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Nirmal S. Basi NSB
Art Unit 1646
May 6, 2002

Michael D. Pak
MICHAEL PAK
PRIMARY EXAMINER